



Third West Weekly Report Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 11/23/2011 12:15 PM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'" <cbarnitz@utah.gov>

8 Attachments











Weekly Report 11-14 through 11-20.pdf Third West Weekly Log 2011-46.pdf 224384-1.pdf 224385-1.pdf 224386-1.pdf







224473-1.pdf 224653-1.pdf 224715-1.pdf

Joyce & Craig,

Attached are the reports for the week of November 14, 2011.

All air monitoring results came back negative.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager ,
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com



November 23, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224715-1 None Given

Project Description:

Rocky Mtn. Power 3rd West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224715-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224715-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 22, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 22, 2011

Client ID Number	Lab ID No	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W111811-E	EM	827622	0.0900	948	ND	0.0045	BAS	BAS
3W111811-S	EM	82762 3	0.0900	948	ND	0.0045	BAS	BAS
3W111811-N	EM	827624	0.0900	942	ND	0.0045	BAS	BAS
3W111811-W	EM	827625	0.0900	942	ND	0.0045	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

EE

Digitally signed by Elisha Ellerman ON: CN = Elisha Ellerman, C = US, O = Reservoirs Environmental, Inc.

11:46:44 -07'00'

DATA QA



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station Location: 3rd West, 1st South, SLC			11/14/11			
			Job Number:			
Survey Condu	ucted By: <u>lustin Kargis</u>	Title:				
		In Compliance	Out of Compliance	N/A	Correct <i>ive A</i> ct i on T <i>ake</i> n <i>a</i> nd	
Standard	Title				Da te	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x		
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.	;		x		
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x				
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x		
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x		
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x				

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			X	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	·
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken a
Standard	Title Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	·
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	ŀ		x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х	,		
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x		-	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			X.	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title	\Box	\Box		Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	х			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	х			
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Newman continued backfilling and compacting around G structure spread footings.

R&R sampled fire tile and mortar on old control building.

CVE poured foundation for new transformer and two more g structure piers.

Eagle environmental on site to put up poly around perimeter fence for next exclusion zone.

CVE line crew finished removal of old UTA terminal service pole.



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DAT	`E:	11/14/11
<u>C</u>	<u>Seneral</u>	Work area Houlth and Safaty Inspection
	IA	Work area Health and Safety Inspection Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1,	1A	activities for the day
N	NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	ĪΑ	Site hazard and safety instruction for all first time employees, contractors or visitors
·	ĪΑ	Complete Employee Meeting Record Form B (where applicable
N	IA	Document required Respirator Training completion with Form H
NA	·	Record times and numbers of dump trucks and trailers as they leave the site with
		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Comp	lete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
•	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
		NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
6	Z	Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
6	Z	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
E	Z I	Review sign-in/sign-out log throughout and at the end of the workday.
	<u> </u>	Secure the site at the end of the workday
5	Sam pl ing	
NA		Soil Confirmation sampling for any newly excavated areas
7		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
N	NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N	NA.	Digitally photograph each sample location and at any place field sampling personnel





NA	Electronically file photo files into the on-site database
\square	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
abla	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
\square	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	11/15/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Technician
-	_		

Standard	T <i>itl</i> e	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.		,	х	·
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or ah assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	х			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x	,		(
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title			\Box	Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			·
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.	x			

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Standard	<i>Titl</i> e	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	·		x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			х	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.	·		х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Da te
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	·
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

Newman backfilling around the Footings, pillars/stems and transformer slab in the main excavated pit. CVE removing framing from last two pillar/stems and transformer slab in the main excavated pit. No disturbance of contaminated soil in the exclusion zone.





3RD WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILY CHECKLIST
DATE:	11/15/11
General	
<u>General</u> ☑	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
2 12 2	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
. NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Pennit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
Ø	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
\square	Review sign-in/sign-out log throughout and at the end of the workday.
\square	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
all	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
Ø.	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd W	est Sub Station		D	ate: 1	11/16/11		
Location:	3rd West, 1st South, SLC		Job Number:				
Survey Condu	ucted By: <u>lustin Kargis</u>		Ti	itle: _	· · · · · · · · · · · · · · · · · · ·		
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title				Date		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			·		
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х			
	Head protection, where there is a possible						

1926.100 (a)

danger of head injury.

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	•		х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.		•	x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.		,	х	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	·
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
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1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

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1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	·
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

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Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

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1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Newman continued backfilling and compacting around G structure stems.

CVE worked on forming the wall for the new transformer foundation.



determined necessary



3^{RR} WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DATI	E:	11/16/11
G	enera <u>l</u>	
$\overline{\Omega}$		Work area Health and Safety Inspection
N.		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1 12		activities for the day
N	A	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N.	A	Site hazard and safety instruction for all first time employees, contractors or visitors
N.	A	Complete Employee Meeting Record Form B (where applicable
\mathbf{N}_{λ}	Ą	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA 🗀	•	Confirm return of waste material manifest documents for each load with site
		manager.
NA	Comp	lete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
		NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
		track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
<u>Sa</u>	mpling	{
NA ☑		Soil Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the
N.	A	exclusions zone Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N	Δ .	Digitally photograph each sample location and at any place field sampling personnel





NA Electronically file photo files into the on-site database \square Complete Field Documentation Field Sample Data Sheets (FSDS) abla \square Logbook NA On-site computer database ablaLabel each sample media with a unique number \square Seal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to ablaappropriate laboratory \square Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees \square Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station		Date: <u>11/17/11</u>					
Location:	3td West, 1st South, SLC		Job Number:				
Survey Cond	ucted By: <u>lustin Kargis</u>		Title:				
•		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title				Date .		
1926.59	Hazard Communication P rogram, List of Chemicals, Training, MSDSs.			x .			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	·		
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x					
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	,		
	Head protection, where there is a possible	x					

19**2**6.100 (a)

danger of head injury.

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	`
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.)		x	•
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.		ļ	x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	·
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

.

					•
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.		•	х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	x			
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Newman continued backfilling and compacting around G structure stems.

CVE and Newman relocated decontamination unit to area near stem structures in zone 2.

Continued forming transformer foundation walls.

Newman stockpiled backfill material near east gate.





3^{RR} WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DATE	E:	11/17/11-
C		
	<u>eneral</u>	Work area Haulth and Safaty Inspection
		Work area Health and Safety Inspection
N ₂	4	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
N.I		activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
N	A	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	4	Site hazard and safety instruction for all first time employees, contractors or visitors
N ₂		Complete Employee Meeting Record Form B (where applicable
N ₂		Document required Respirator Training completion with Form H
NA	•	Record times and numbers of dump trucks and trailers as they leave the site with
1121		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
1121		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
1121	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
		NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
\square		Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
\square		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
		track out prevention.
\square		Review sign-in/sign-out log throughout and at the end of the workday.
		Secure the site at the end of the workday
Sa	mpling	
	_	
NA		Soil Confirmation sampling for any newly excavated areas
\square		Stationary Air Monitoring during contaminated soil removal around the perimeter of the
		exclusions zone
N.	4	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
		removal
N	4	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
$ \vec{\square} $	Complete Field Documentation
\mathbf{Z}	Field Sample Data Sheets (FSDS)
abla	Logbook
NA	On-site computer database
$\overline{\mathbf{Q}}$	Label each sample media with a unique number
. 2	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station Location: 3rd West, 1st South, SLC Survey Conducted By: lustin Kargis		Date: 11/18/11 Job Number:					
				In Compliance	Out of Compliance	N/A	Corrective Action Taken and
St <i>an</i> dard	Title				D a te		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x			
	Head protection, where there is a possible	x					

1926.100 (a)

danger of head injury.

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			х	·

	; ;					
			In Compliance	Out of Compliance	N/A	Corrective Action Taken and
	Standard	Title				Date
	1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
	1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
į	1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
	1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
,	1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
	1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
	1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
	1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	i.
-	1926.102 (a) (1)	Eye and face protection shall be provided.	x			
	1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
	1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		☐' In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard 1926.405 (a)	Temporary lights shall be protected from	<u></u>		x	Date
(2) (ii) (e) & (f)	breakage, not suspended by their cords and extension cord.				
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			x	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			×	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	-
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			х	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	,		x	

CVE continued working on forming walls for transformer foundation.

Newman potholed with a vacuum trailer down to around 6 feet in the north-central part of the yard to find existing duct bank depths. They double suited and used respirators while working. Excavated dirt was replaced back into holes and encapsulated with fill material and yard rock.

Area surrounding digs was watered down as well after they completed filling the holes.

Newman continued to stockpile material for future backfilling.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

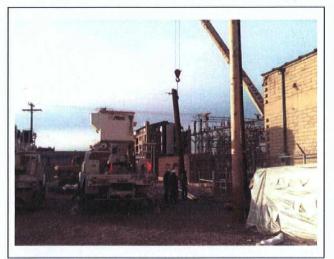
DAILY CHECKLIST

	DINE I CHECKETO
ATE:	11/18/11
General	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues
NA	and any modifications to the CSHASP Site hazard and safety instruction for all first time employees, contractors or visitors
NA NA	Complete Employee Meeting Record Form B (where applicable
	ment required Respirator Training completion with Form H
	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
Conf	irm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
	Decontamination unit is working properly.
	Workers are using decontamination unit as instructed.
	Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
\square	Review sign-in/sign-out log throughout and at the end of the workday.
	Secure the site at the end of the workday
<u>Samplin</u>	g
NA	Soil Confirmation sampling for any newly excavated areas
☑ .	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
NA	removal Digitally photograph each sample location and at any place field sampling personnel
	determined necessary
\square	Electronically file photo files into the on-site database





⊻	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 11/14/2011	FILE:	

SITE PHOTOGRAPHS





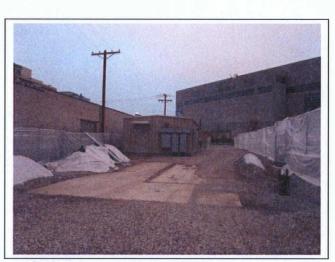
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
CREATED BY: JRWC	DATE: 11/15/2011	FILE:	

SITE PHOTOGRAPHS









РНОТО 2

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 11/16/2011	FILE:	

SITE PHOTOGRAPHS

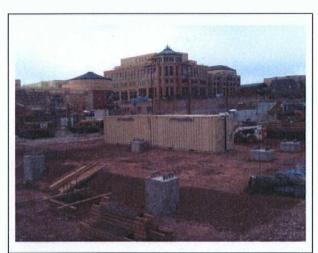




РНОТО 1



РНОТО 2



РНОТО 3

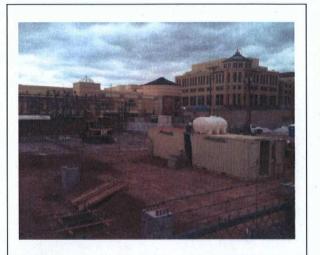
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 11/17/2011	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 11-18-11	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild Sunday, November 13, 2011 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: Crew Start Time: 23:45 Crew Stop Time: 8:15 Tot Hrs mns: 8:30 23:30 9:00 FCR Start Time: FCR Stop Time: Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Light Drizzle, 40 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. R&R returned later in the day on Sunday to retrieve the monitors. CVE line crew arrived at the site around 11:30 on Saturday night. They took an outage on the line running south Into the substation that serves Artistic Printing and the UTA terminal static They removed the existing conductor and topped the pole that was in the NW corner of the substation area. This pole conflicts with the new vault that will be placed in that area of the sub. The pole stub will be removed on Monday morning, as well as the old terminal pole for the UTA connection. It rained most of the time the crew was working and after stringing new conductor, changing out the crossarm above the transformers feeding Artistic Printing, and terminating the new feed to UTA, the line was re-energized around 8:00 Sunday morning. CVE line crew = 5. IF WORKING IN ENERGIZED SUBSTATION: Paul Farr 2344 Dispatcher login, name and time: Dispatcher logout, name and time: Joe Bryant 0830 IMMEDIATE CORRECTIVE ACTION TAKEN: DISCREPANCIES: DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle):



OSHA Recordable Safety Incidents:

CVE line crew: Crew truck, bucket truck, line truck, boom truck, pole trailer.

Russ Johnson

Reported by:

Time:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third W	est Sub - Rebuild	DATE:	Monda	y, November 1	14, 2011
PO & Work Order NO. :	3000078	8050 / 10035803	MAIN CONT	RACTOR	: Cache Valle	ey Elect r ic
Crew Start Time:	7:00	Crew Stop Time:	16:40	0	Tot Hrs mns:	9:40
· FCR Start Time:	6:40	FCR Stop Time:	17:3	5	Tot Hrs mns:	10:55
Use military time format 00:00		_			_	
WEATHER CONDITIONS:		Sunny,	hazy - 52 deg	rees		
DESCRIPTION: (work perfo	rmed general	comments instructions to	contractor #	of crow ma	mhere encite	. 1
returned to retrieve their monitors cables as well as foaming the top floor and the two north pedestals Environmental crew repaired the gates, and along the north fence east transformer wall, two C foun foundation. Concrete slump was 4, CVE line crew = 5, Eagle = 2,	of the UG condu for the spread for visqueen by the line between the dations, two D for at 5.5", the air we Newman = 4, Ro	uit. CVE line crew cleaned up all ortings. Newman continues to b control building and installed visq RMP and UTA properties. Estimundations, one F foundation, all cas at 5% and all compaction test &R = 1, Wilding = 1.	materials. CVE ackfill in the sou ueen along the sate for next pour the south end	Fab crew po th part of the south fence r is Thursday of the proje	oured the east tree excavation. Ealine, across the yor Friday and yot, and the SE b	ansfor m er agle two west will include the
Dispatcher login, name and time:						
Dispatcher logout, name and time	: Al Swinski					
DISCREPANCIES:			MMEDIATE C	ORRECTI	/E ACTION TA	AKEN:
		•				
					 · · · · · · · · · · · · · · · · · ·	
	•					
						.
	•			•		
DELAYS OR LOST TIME EN	COUNTERED:		 			
·		•				
EQUIPMENT (working, deliv	ered, idle):					
CVE fab crew: Portable toilet (2), for Crew truck, bucket truck, line truck, rr truck, compactor, backhoe.	dift, 2 dumpsters, o					
OSHA Recordable Safety Inc	cidente:			Donostod	har	Timor
Oona Recordable Safety In	cidents:	<u> </u>		Reported	, l	Time:
	•					



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild PROJECT NAME: Tuesday, November 15, 2011 PO & Work Order NO. : 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:55 Crew Stop Time: 17:10 Tot Hrs mns: 17:10 FCR Start Time: 6:45 FCR Stop Time: Tot Hrs mns: 10:25 Use military time format 00:00 **WEATHER CONDITIONS:** Sunny to Partly Cloudy - 40 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE line crew laid down copper grid in the south portion of the excavation and Newman has now covered the 4/0 copper wire. All cadweld connections were inspected prior to covering. CVE fab crew stripped the east transformer floor and the two north pedestals and is starting to place rebar and forms for the oll containment walls. Newman has been backfilling around the east transformer foundation and has placed backfill over the 4/0 copper ground grid. CVE fab crew = 4, CVE line crew = 5, Newman = 4, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Barry Nielson 0655 Dispatcher logout, name and time: Al Swinski 1710 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. CVE line crew: Crew truck, bucket truck, line truck, material truck, pole trailer Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.



OSHA Recordable Safety Incidents:

Russ Johnson

Reported by:

Time:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild DATE : Wednesday, Novemb					16, 2011
PO & Work Order NO. :	300007805	50 / 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:	17:00	Tot Hrs mns:	10:00
FCR Start Time:	6:45	FCR Stop Time:	18:10	Tot Hrs mns:	11:25
Use military time format 00:00	0.40	TOROLOP TIME.	10.10		11.20
oco implany amo iormat cores					
WEATHER CONDITIONS:	·	Sunny to	Cloudy - 45 degrees		
DECODIDATION (
DESCRIPTION: (work perfo		g on the oil containment walls			
in spoils from the storage site an CVE fab crew = 6, N ewman = 4,	d is backfilling the ar	ea south of the east transform			
;					
•					
		•			
•		•			J
ı					
·					
IF WORKING IN ENERGIZE					
Dispatcher login, name and time					
Dispatcher logout, name and time	e. Al Swinski 174	-	IMMEDIATE CODDECTION	/F. A CTION TA	VEN.
DISCREPANCIES: Issue with ground rods not being able	e to nepetrate the conc		IMMEDIATE CORRECTI Contacted Roger Elverst	VE ACTION TA	KEN:
the 138 kV yard.	s to perietrate the conc	Tete 11001 111 the Middle Section of	Contacted Noger 1 derst.		
Drwg 148111.003, issue with what m	esterial to sover the con	perete encoded dust book for	Contacted Roger Fuerst and he	indicates that the d	uet benk is te
transmission runs.	laterial to cover the con		be covered with FTE	mulcales that the u	uci barik is iu
		-			
			•		
DELAYS OR LOST TIME EN	COUNTERED:				
					:
				•	
					1
EQUIPMENT (working, deliv	vered, idle):				
CVE fab crew: Portable toilet (2), for Crew truck, bucket truck, line truck, r truck, compactor, backhoe.	rklift, 2 dumpsters, offio		conex (2), tool trailer, crew truck, own structure, trachoe (2), mini-		
				ï	
OSHA Recordable Safety In	icidente:		Reported	hv:	 Time:
Cona Necoluable Salety In	ioidelits.		Keported	Jy.	.



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild PROJECT NAME: DATE: Thursday, November 17, 2011 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 7:00 Crew Stop Time: 17:15 Tot Hrs mns: 10:15 FCR Start Time: FCR Stop Time: 17:30 Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny / Overcast - 50 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE fab crew is working on the oil containment walls, including forms, rebar, and embeds. They have completed the interior walls. Todays work includes placement of embeds, tying of horizontal rebars for the walls They have moved their next pour to Tuesday, November 22. This pour will include the walls, the SE circuit breaker foundation, and the structure F in the SE corner. It may include, depending on the availability of rebar, the two C and the two D foundations on the south end of the 138 kV yard. Newman is hauling in spoils from the storage site and is backfilling the area south of the east transformer. CVE and Newman personnel moved the two DECON conexes to a new location in the middle of spread footings to facilitate setting up the new exclusion area. CVE fabricated the groun IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Jim Bowman 0638 Dispatcher logout, name and time: Al Swinski 1724 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits. DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman:



OSHA Recordable Safety Incidents:

portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.

Russ Johnson

Reported by:

Time:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third W	est Sub - Rebuild	DATE :	Friday, No	vember 18	, 2011
PO & Work Order NO. :	300007	8050 / 10035803	MAIN CONTR	ACTOR : C	ache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:	16:45	Tot	Hrs mns:	9:45
FCR Start Time:	6:50	FCR Stop Time:	17:15	Tot	Hrs mns:	10:25
Use military time format 00:00	0	_				
WEATHER CONDITIONS:		Cloudy, 48 degrees in r	norning - 35 degre	es in the afte	ernoon.	
DESCRIPTION: /work north	formed seneral	comments, instructions to	contractor # of	crow momb	ero ancito	,
embeds for the interior walls of Todays work includes installation installation of appropriate bracinis still scheduled for Tuesday mathe SE corner. It may include the storage site and will be potnew switchgear. Pot-holing ide the pot-holing and has notified.	the oil containment on of the ground plang. Visqueen has law orning at 10:00 am the two C and the two contified that the top RMP Environmentatth, from the south	rking on the oil containment walls t, placed the conduit inserts in the ates in the interior and exterior fabeen placed over the tops of the n. This pour will include the walls wo D foundations on the south earnek/trailer to determine depth of of the duct bank is 1/16" higher that personnel. Custom Fence instence line, tying into the DECON = 2, R&R = 1, Wilding = 1.	ne north wall, and co aces of the walls, ins walls to prevent sno s, the SE circuit brea and of the 138 kV yal f the 46 kV duct ban than the bottom of the talled a new "exclus	ompleted the restalling the extrower from falling aker foundation ord. Newman is the switchgear sion zone" fences	ebar for the verior wall partinto the form, and the seat the west effooting. R& using ren	walls. nels, and ms. The po tructure F in spoils from and of the R is aware o
IF WORKING IN ENERGIZE	ED SUBSTATIO	N:				
Dispatcher login, name and tim	e: Kim Batt 06	655				
Dispatcher logout, name and tir	me: Gus Monta	nez 1710				
DISCREPANCIES:			IMMEDIATE CO	RRECTIVE A	CTION TA	KEN:
		•				
No resolution on the 20' ground roo	issues or the FTB ba	ackfill for the transmission conduits.				
		· · · 	·- <u>-</u>	 :		
DELAYS OR LOST TIME E	NCOUNTERED:					
EQUIPMENT (working, del						
		office trailer, conex, exclusion zone		crew truck, boon	truck (2). N	ewman:
portable wash-down structure, trace	choe (2), mini-ex, bob	ocat, power washer, water truck, com	pactor, backhoe.		÷	
OSHA Recordable Safety	Incidents:		R	eported by:		Time:



Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 8:00 Crew Stop Time: 15:00 Tot Hrs mns: 7:05 FCR Start Time: 7:55 FCR Stop Time: 15:00 Tot Hrs mns: 7:05 Use military time format 00:00 WEATHER CONDITIONS: Overcast, snowed last night, started at 32 degrees to Partly Cloudy at 36 degrees. DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4.	PROJECT NAME:	Third West Sub -	Rebuild	DATE:	Saturda	y, November	19, 2011
FCR Start Time: 7:55 FCR Stop Time: 15:00 Tot Hrs mns: 7:05 Use military time format 00:00 WEATHER CONDITIONS: Overcast, snowed last night, started at 32 degrees to Partly Cloudy at 36 degrees. DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Paul Farr 0810 Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	PO & Work Order NO. :	3000078050 / 10	0035803	MAIN CONT	RACTOR :	Cache Valle	ey Electric
FCR Start Time: 7:55 FCR Stop Time: 15:00 Tot Hrs mns: 7:05 WEATHER CONDITIONS: Overcast, snowed last night, started at 32 degrees to Partly Cloudy at 36 degrees. DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Paul Farr 0810 Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	Crew Start Time: 8	:00	Crew Stop Time:	15:00		Tot Hrs mns:	7:00
WEATHER CONDITIONS: Overcast, snowed last night, started at 32 degrees to Partly Cloudy at 36 degrees. DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew ≈ 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Dispatcher logout, or ame and time: Dispatcher logout, or ame and time: Dispatcher logout, name and time: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.			FCR Stop Time:	15:00		Tot Hrs mns [.]	7:05
WEATHER CONDITIONS: Overcast, snowed last night, started at 32 degrees to Partly Cloudy at 36 degrees. DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Dispatcher logout, or ame and time: Dispatcher logout, or ame and time: Dispatcher logout, or ame and time: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.			. Olt Otop : Illion				1.00
DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Paul Farr 0810 Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	ose mintary one format oc.ou						
CVE fab crew set up forms and rebar for the two C foundations, two D foundations, and south circuit breaker foundation. CVE fab crew = 4. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Paul Farr 0810 Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	WEATHER CONDITIONS:	Overcast, sno	wed last night, starte	d at 32 degrees	to Partly C	loudy at 36 d	egrees.
IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Paul Farr 0810 Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.		or the two C foundati	on s , two D foundations	, and south circuit	oreaker tou	indation.	CVE TAID
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	·						•
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	·						
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	·		•				
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
Dispatcher logout, name and time: Dispatcher logout, name and time: Dispatcher logout, name and time: Paul Farr 1500 IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.	IF WORKING IN ENERGIZED SU	BSTATION:					
Dispatcher logout, name and time: Paul Farr 1500 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
No resolution on the 20' ground rod issues or the FTB backfill for the transmission conduits.							
		-		IMMEDIATE CO	PRECTIV	E ACTION TA	KEN:
						·	
DELAYS OR LOST TIME ENCOUNTERED:	No resolution on the 20' ground rod issues	or the FTB backfill for th	e transmission conduits.				
DELAYS OR LOST TIME ENCOUNTERED:						· ———	
DELAYS OR LOST TIME ENCOUNTERED:				· · · · · · · · · · · · · · · · · · ·			
	DELAYS OR LOST TIME ENCOU	NTERED:					
				· · · · · ·			
		•					
		·					
	<u> </u>						
EQUIPMENT (working, delivered, idle):	EQUIPMENT (working, delivered	, idle):					
CVE fab crew: Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.					, crew truck, b	oom truck (2). N	ew man:
OSHA Recordable Safety Incidents: Reported by: Time:	OSHA Recordable Safety Incide	nts:			Reported I	by:	T <i>i</i> me:



Russ Johnson



November 17, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224384-1 None Given

Project Description:

3rd West Substation -

PacifiCorp

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224384-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental. Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224384-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Substation - PacifiCorp

Date Samples Received:

November 16, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 16, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID N	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-111511-N	EM	825081	0.0800	1210	ND	0.0040	BAS	BAŞ
3W-111511-S	EM	825082	0.0800	1210	ND	0.0040	BAS	BAS
3W-111511-E	EM	82508 3	0.0800	1208	ND	0.0040	BAS	BAS
3W-111511-W	EM	825084	0.0800	1208	ND	0.0040	BAS	BAS
Blank (Sample Not Labeled	EM	825085	NA	0	NA			
Blank (Sample Not Labeled	EM	82508 6	NA	0	NA			

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² =

0.010

DATA QA

Due Date: 11-17-1 Due Time: Dan



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SUBMHTED BY: **INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION:** +R-Environmental Tuc Company: Address: Phone: Fax Cell/pager Cell/pager Final Oata Deliverable Email Address Project Number ana/or P.O. #: Project Description/Location: West Substation - Paul Cord DAVEQ PPENVIRO.COM ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS **VALID MATRIX CODES** LAB NOTES: PLM / PCM / TEM RUSH (Same Day) PRIORITY (Next Day) ___STANDARD \mathbf{A} ir = \mathbf{A} Bulk = B 8 õ (Rush PCM = 2hr, TEM = 6hr.) Long report, Point Count Paint = P Dust = D . +/-. Preps GRO, CHEMISTRY LABORATORY HOURS: Weekdays: Sam - 5pm Soli = S Wipe = W Metal(s) / Dust ____ RUSH ____ 24 hr. ___3-5 Day Drinking Water = DW Waste Water = WW **Prior notification is AHERA, Level II, 7402, Jant, Micro-vac, ISO-Indir RCRA 8 / Metals & Welding OSHA ___ RUSH ___ 5 day ___10 day required for RUSH Other = O Fume Scan / TCLP turnarounds.** - Total, Respirable **ASTM E1792 approved wipe media only** _ 24 hr. ____ S day ____S Day Organics - Analyte(s) Short report, BTEX, **Analysis lumarounda are aubject to laboratory sample vohim and are not guaranteed. You will be notifited Volume 7400A. if delays are expected. Additional fees apply for afterhours and trofidays for all analysis types.** Containers Matrix Code 6amplo Vo {L} / Area METALS Time Date Special Instructions: _ 5. Collected Collected EM Numbar (Laboratory mnvdd/yy hh/mm a/p Use Only) Client sample ID number (Sample ID's must be unique) 11/15/11 ପାସ 1210 202 3 200 2 80 86 8 9 10 11 12 13 (Additional samples shall be listed on attached long form.) Number of samples received: NOTE: REI will analyze incorning samples ba Ad upon infoortation received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing clien/company representative agrees that submission of the following samples for requestivit energies as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1,5% monthly interest surcharge. Relinquished By: 1/ Date/Time: Sample Condition: On Ice Sealed intact Laboratory Use Only YN 3/N ಅ Carrier: Received By Date/Time: 11.16.16 Results: 05 Initials Phone Email Fax Page Phone Contact Date Time Initials Contact Email Date I #ime Page/Phone Email Fax Contact Time Initials Page Phone Email Fax Date Time Date Contact Initials - 4: 8692 7025 WLUG

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
Т	=	Tramalita		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

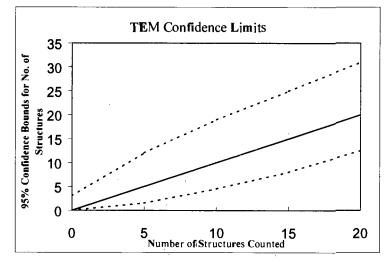
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	Reservoirs Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	too KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 10 =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Tyoe	Not QA

Client:	R & R Environmental,inc.
Sample Type (A=Air, D=Dust):	Α
Air volume (L) or dust area (cm2)	1210
Date received by lab	11/16/2011
Lab Job Number:	224384
Lab Sample Number:	825081

Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary litter (ml)	

Analyzed by	n.zimbelman
Analysis date	11/16/2011
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyze
Scope Alignment	Date Analyzed

Client Sample ID Number: sW-Msn-N

Grid	Grid Opening	Structure	No. of St	No. of Structures		tures Dimensions		Mineral Class				1 = y	es, blank	= no
O.I.O	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
4	E3-1	دا ۵								-				
	B3-1	a D					4							
	A3-6	۵۱۶						9						
	B3-6	w d					1-1	-A , 90)	123	3_	5 X 120	ردر		
	に3. 分	و الم												
В	£4-1	الدب					P~ ~	y . b ~	+					
	74-1	μA												I
	64-1	GT V												

Reservoire Environmental, tnc. TEM Asbestos Structure Count.

	Heservoirs
Laboratory name:	Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
(111112)	0.010
Scale: 1L =	0.29 uni
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area	
(mm2)	N/A
QA Tvoe	Not QA

Client:	R & R Environmental, Inc.
Samole Type (A=Air, D=Dust):	Α
Air volume (L) or dust area (cm2)	1 2 10
Date received by lab	11/16/2011
Lab Job Number:	224384
Lab Sample Number:	825082

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary fitter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary tilter (ml)	

Analyzed by	n.zimbelman
Analysis date	11/16/2011
Method (D=Oirect, I≈Indirect,	
IA=Indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Ainera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample 1D Number 3W-111511-\$

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	klentification	Mineral Class				1 = y	es, blank	= no
U.S.	One Optimis	Туре	Primary	Total	Length	Wktth	RIGIRINGGEOR	Amphibole	С	NA M	Sketch/Comments	Sketch	Photo	EDS
A	F3-1	A D												
	F3-4	41												
	63-3	74		,										
	63-6	47									·			
	62,-1	لاله				A:	90/2	wt. 3-	1 2	ال تال				
6	F1-6	ыŊ							_ (·		ה			
	61-3	43				,							·	·
	1/2-1	d)				A 0	~ 4							
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Reservoire	Environment	tai, inc.
TEM Asbest	os Structur	e Cour

TENT REPORTED OU	
Client:	R & R Environmental, inc
Sample Type (A=Air, 0=Dust):	Α
Air votume (L) or dust area (cm2)	1208
Date received by lab	11/16/2011
Lab Job Number:	224384
Lab Sample Number:	825084

, Reselvoirs Environmental, Inc.

JEOL 100 CX N

100 KV

20KX 0.010

0.29 um

0.058 um

385

N/A Not QA

Laboratory name:

Magnification
Grid opening area

Scale: ID = Primary filter area

(mm2) Secondary Filter Area

Instrument
Voltage (KV)

(mm2) Scale: 1L =

(mm2)

QA Type

Analyzed by	n,zimbelman
Analysis date	11/16/2011
Method (D=Oirect, l=Indirect,	
IA=Indirect, ashed)	_ D
Counting rules	
(ISO, ANERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Client Sample ID Number SW-1t1S11-W

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no		
Gild	Grid Grid Opening	Туре	Primary	Total	Length	Width	100mg/ilootion	Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	E3-3	<u> </u>				,	•							
	£3-4	410												
	F3-4	NJ										,		
	#3-1	DLA												
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3	& (d b												
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Reservoirs Environmental, Inc. TEM Asbestos Structure Counf

Laboratory name	Reservoirs
Laboratory name:	Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area	
(mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D ≈	0.058 um
Primary filter area	
(mm2)	365
Secondary Filter Area	
(mm2)	N/A
QA Type	Not QA

TIN Vancatos an	H-101-0-00111
Client:	R & R Environmental,Inc.
Samole Type (A=Air, D=Dust):	Α
Air volume (L) or dust area (cm2)	1208
Date received by lab	11/16/2011
Lab Job Number:	224384
Lab Sample Number	825083

F-Factor Caloulation (Indirect Prep	os Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	11/16/2011
Method (D=Dlrect, (=Indirect,	
IA≃Indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number SW-111511-E

Grid	Grid Opening	Stmcture	No. of Str	ructures	Dimensions		Identification	Mineral Class				1 = yes, blank = no		
	One opening	Туре	Primary	Total	Length	Wktth		Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
4	Kr. 3	لا له												
	Harl	עע						·						
	62-4	'nП		-									,	
	62-1	hФ												
	el. 3	d D			A 7	90	× 156-54	- 3 - 5	X Da	السط)				
B	63-3	Q D												
	63-6	لا ب									·			
	1-3-6	(LL)				۸ کا	, A							
		•												
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Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



November 17, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES **22**438**5**-1 None Given

Project Description:

None Given

3rd West Substation RMP

Eldon Romney R & R Environmental 47 West 9000 South #2

Dear Customer,

Sandy UT 84070

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RE**S 22**4385-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224385-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Substation RMP

Date Samples Received:

November 16, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 17, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter	
ID Number	ID Number		Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W111311-S.E.	EM	825087	0.1100	710	ND	0.0049	BAS	BAS	
3W111311-N.E.	EM	825088	0.0700	1280	ND	0.0043	BAS	BAS	
3W111311-S.W.	EM	825089	0.1000	800	ND	0.0048	BAS	BAS	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

Digitally signed by Elisha DN: CN = Elisha

11:19:35 -07'00'

Due	Date:_	11711
Due	Time:	- Den-

Saol Logen St. Deriver, CO 80218 • Ph; 303 964-1986 • Fsx 303-477-4276 • Toil Free :866 RESI-ENV

Page	-	~ ~ 1	

	Pager : 308-569 INVOICE TO: {IF		FRFI	MT)										CON	TACT	' INF	ORM	ATtON:			- 5-
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Address HT W 9000 S	Additess:					Phot	Centract: Drive Roskelley Phone:							7	Plitos:						
Sandy Ut. 8W70						Fax					_					_	Fex:				
	<u> </u>					CelV	pager:	80	[5	41	- 1	039					Catt/page	ir.			
Project Number end/or P.O. e;						Fins	Opto	Delive	rable	Emel	Addt	38:									
Project Description/Location: 3 to West Sub Station Rup						floor	da	ne	0	- 171	ev	vin	2.02	<u> </u>							
ASBESTOS LABORATORY HOURS: Weekdays: 7am - Tpm					R	EQUE	STE	DA	NA	LYS	IS			I		/AU	D MA	TRIX C	ODES	LA	B NOTES:
PLM / PCM / TEM RUSH (Same Day) X PRIORITY (Next Day)STANDARD	П			T		\Box	\top		\top					A	Jr = /	<u> </u>		Butk • B		
(Rush PCM = 2hr, TEM = 8hr.)		1 1		1	- 1	1 1			li						Dı	ıst =	D		Paint = P		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm] {		1	- {			-	1					L	S	oll a	5		Nipe & W		
Metal(e) / DustRUSH 24 hr 3-8 Day		1	ť			1 1		-				1	}			ab =			F = Food	<u> </u>	
RCRA B / Metals & Weiding	**Prior notification is required for RUSH	를	Quamt,			E				ğ			8	D	inMng	Wat	er = DV	V Waste	e Watsr≖ WW	L	
Fume Scan / TCLP 24 hr 5 day 5 Day	tuniaraunds.**	월	‡ §			8				Quantification			Quantification ER NOTES	-	-ARTI	d F17		Other	e media only**	ļ	 -
MICROBIOLOGY LABORATORY HOURS: Weekdaya: 9am - 6pm			⇔ E !			Metats					Quantification	چ ا	2 K	-			1				
E.coll 0 157:H7, Coliforms, S.aureue24 hr2 Day	3-5 Day	report,	7402, ISO-Ind	≨		<u>a</u>				8	養	Ouerutification uantification	EE	1			- {				
Salmonella, Listeria, E.coli, APC, Y & M48 Hr3-5 Day	,	اچ	.	OSHA	윭					丰	3		8 8	1							
M old RUSH 24 Hr	48 Hr3 Day5 Day	<u>§</u>	Level II, D-vac, I	7400B,	돐	€ ¥	_	#		Ouentfic	6	8 0	复 ST	ſ					1		
"Turnaround times establish a laboratory priority, subject to laboratory volume and a	re not guaranteed. Additional fees	ν E	9 6 P	₹	- Total, Respin	- Analyte(s) TCLP, Welding Fume,		umonella: +/- coli 0157:H7:		ရှိ မ	*	± 8	P E	- 1				•			
apply for afteriours, weekends and holidays.** Special Instructions:		Short	AHERA, Part, Mik	7400A,	18	~ [9	015	1		15	<u>تو</u> ا	* E	1:	ē _	륁	8		1		•
] ·]	· 🗗	7	DUST	METALS RCRA 8.	ORGANICS - METH	Salmonella: E.coli 0157	Step	Aerobic Plate Count.	Coliforms:	S.aureus:			(L) / Area	Matrix Code	# Containers	Date Collected	Time Collected		m ber (Laborato Use Only)
Client sample ID nmnber (Sample ID's must be unique)	딀	Semi	ğ	8	불운	8		MK	ROB	OLC	87	SA	1	<u> </u>	_	#	tnm/dd/yy	hivimm a/p		
Scripto Received 18104)	25)		X								1				110	A		1/13/1		&≥	5007
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	onal samples shall be listed on	atlac	bed lo	na fo	rm.)		L		<u> </u>				4.4							J	
NOTE: REI will analyze incoming samples bases upon infiffni Acit received and will not be a	responsible for enters or omissions in c	alculati	one rele	ettino fi	rom di	e inacci	racy C	r otigi	nel d	sia. By	algn	ng die	nt/cempen	y repre	3entativ	e agra	as that a	nolesimdu	of the following Sc	imples for r	betseupe
anatysts as indicated on this Chain of Custody 37077 Cinstitute an analytical services egreem		a. tsilu	re to con	np!y w	Ath psy	ymetit le /	ms m	ay res	ult in	a 1.59	% moi	nthiy ka	lotest surc	harga.	_						
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Laboratory Use Only Received By:	te/Time: (1-16016	. <	2			Carrie	1	-	e						Ter	n p . (-م (^{۴۰}		Yes / No Y	es / No	Yes / No
Results: Contact Day (Phone Email Fax Date)			4 Co	rtact	_			Phon		_	~			D	ate)	Δī	717	T	ime ///0	init	6/_
Contact Phone Email Fax Date	Time Initi		_	ntact				Phon	ne V	mail	Pa	ζ		D	ate	T		T	ime	Init	ials
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

		· ·			
Α	=	Amosite	I	? =	Fiber
An	=	Anthophyllite]	3 =	Bundle
C	=	Chrysotile	(C =	Cluster
Cr	=	Crocidolite	ľ	M =	Matrix
T	=	Tremolite			*

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

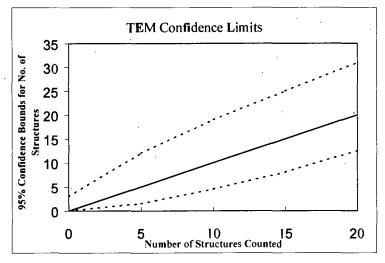
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	2016X 1016X
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.056 ıim
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Ran
A
710
11-16-11
224385
825087

F-Factor Calculation (Indirect Pro	eps Only).	
Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter (ml)		Ė

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	AH
IA=Indirect, ashed)	
Method (D=Direct, l=indirect,	
Analysis date	11-17-11
Analyzed by	AH

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	identification	Mineral Class				1 = yes, blank = no		
Sin .	Grid Opening	Туре	Primary	Total	Length	Width	Identinoation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-1	ND												
	F44	$\mathcal{N} \Delta$		¥ f	-lter	Nas	wet						. <u></u>	
	F4-1	MD		Pien	4: Le	0%	intact	3-54	leba	S	Ì			
	133	M		Piep		Prec	A							
	H36	ND									,			
	H3/3	Δ		·			-							
	63-6	M												
B	ESA	WD												
	C5-4	ND												
	L5-1	W												

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Reservoirs Environmental, Inc., TEM Asbestos Structure Count

 LAB NAME
 REI LAB
 Lab Job Number:
 224385
 Analyzed by:
 Att

 Lab Sample Number
 825087
 Analysis Date:
 11-17-11

Grid	Grid	Structure	No. of St	ructures	Dimer	nsions	Identification	Min	eral Class	3		ves, blank = no		
Gild	Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	,,,,,		Sketch/Comments	Sketch	Photo	EDS
B	BSH	M			,]		•			
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Reservoirs Environmentat, inc. TEM Asbestos Structure Count

Laboraton name:	REI
Instrument	JEOL 100 CX 11(S)
Voltage (KV)	100 KV
Magnification	(2016X 1(16X
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scate: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1280
Date received by lab	11-16-11
Lab Job Number:	224385
Lab Sample Number:	825088

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary filter used	1
Total Resuspension Volume (mi)	
Volume Applied to secondary filtar (ml)	

Scope Alignment	Date Analyzed
Grid storage location	Mointh Analyzed
Counting rules (ISO, AHERA, ASTM)	44
Metinod (D=Oirect, I=Indirect, IA=Indirect, ashed)	8
Analysis date	11-17-11
Analyzed by	AH

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length Width			Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F6-4	MD								-				
	Fb-1	ND							_		_			
	E6-4	MD		Pier	A: 8	540	ntact.	3560	leb.	S				
	E10-	ND		Pile		<u> ၈</u> ၀%	intact	3.5%	leb,	-2				
B	62-6	24												
	62-3	M							7	_				
	F2-6	ND					,				·			
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	,							7						
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Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	ؙX 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 uiti
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	

Client :	640
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	800
Date received by lab	11-16-11
Lab Job Number:	224385
Lab Sample Number:	825089

Fraction of primary filter used) ·
Total Resuspension Volume (ml)	
Voluma Applied to secondary litter (ml)	

Analyzed by	AH
Analysis dale	11-17-1
Method (D=Olrect, I=Indirect, IA=tndirect, ashed)	
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	. Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Wkith	identification	Amphibole	С	NAM	Sketch/Comments		Photo	EDS
A	K5-6	ND						· · ·						
	K5-3	ND			*1	Ve+	filer							
	145-6	ND		Po	A:	60%	intact	3-5%, o	lebr	5		·		
	H5-3	ND		Pie	b.B	809	intact	3-5%	de6	<u>-</u> S				
	65-6	M						, .						
B	1+3-6	MV				P					·			,
,	H3-3	MV			1			•						
	63-6	Δ								·			,	
	6 33	ND			-									
	F36	MD												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (Inn1}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mni²)}}$

GO = TEM grid opening



November 17, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224386-1 None Given

Project Description:

3rd West Substation RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224386-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224386-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Substation RMP

Date Samples Received:

November 16, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 17, 2011

Client ID Number	Lab ID Ni	umber	Area Analyzed			Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W111411-E	EM	825090	0.0900	1037	ND	0.0041	BAS	BAS
3W111411-S	EM	825091	0.0900	1069	ND	0.0040	BAS	BAS
3W111411-N	EM	825092	0.0800	1069	ND	0.0045	BAS	BAS
3W111411-W	EM	82509 3	0.0800	1069	ND	0.0045	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

Digitally signed by Elisha Ellerman DN: CN = Elisha Ellerman, C = US, O = Reservoirs

Due	Date:	11-17-71
Due	Time:	Dow

RESERVEITS Environmental, Inc.

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Page _	_1	of !	

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4 (W 4090 3							Fax										Fax						
Sandy, W. 84070	-					Ce	Cell/pager: 301 541-1035										Cat/pagtr						
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PLM / PCM / (TEM RUSH (Same Day) / PRIORITY (Next Day) STANDARD									П	П	Т					Alr =	A		Bulk = B				
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	onal samples shall be listed on			_												_							
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Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

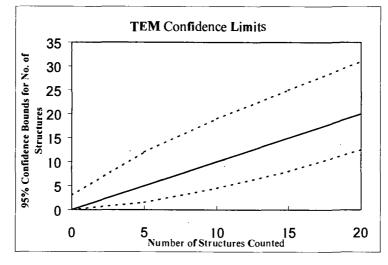
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	Reservdii's Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	ieo KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D=	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Tyoe	Not QA

Client:	R & R Environmental, Inc.
Sample Type (A=Air, D=Dust):	A
A)r volume (L) or dust area (cm2)	1037
Date received by lab	11/16/2011
Lab Job Number	224386
Lab Sample Number:	825090

Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volums Applied to secondary filter	

Analyzed by	n.zimbelman
Analysis date	11/16/2011
Method (D=Direct, I=Indirect,	
IA=Indirect, ashed)	D
Counting rules	
((SO, AHERA, AS TW)	Aftera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-111411-E

Grid	Grtd Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, biank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
4	EKIL	44												
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	H4-4	41					•							
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	Ce 3-1	40					₿:~	A						
														-

	R6servoirs
Laboratory name:	Enyironmental,Inc.
Instrument	JEOL 109 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primaly filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

	R&R			
Client:	Environmental, ine.			
Sample Type (A=Air, D=Dust):	. А			
Air volume (L) or dust area (cm2)	106 9			
Date received by lab	11/16/2011			
Lab Job Number	224386			
Lab Sample Number	825091			

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	11/16/2011
Method (D=Dlrect, l=indirect,	
IA=indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-111411-S

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	Ond Opening	Туре	Primary	Total	Length	Width	identillezaten	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
-A	421	47												
	62-1	Y D												
	F2-6	لال		****										
	F2-6	hП					1							
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B	K4-4	NA												
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	81-4	ψŊ					B: ~	<u>A</u> .						
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	Reserveirs
Laboratory name:	Environmental,Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	loo KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L=	0.2 9 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

Lin Aspestos Stricture Count						
Client:	R & R Environmental,inc.					
Sample Type (A=Alr, D=Dust):	Α					
Air volume (L) or dust area (cm2)	1069					
Date received by lab	11/16/2011					
Lab Job Number:	224386					
Lab Sample Number:	82ē092					

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter	

Analyzed by	AH
Analysis date	11/17/2011
Method (D=Direct, I=Indirect,	
IA=Indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-111411-N

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class	,			1 = y	es, blank	= no
O 11.0		Туре	Primary				Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS	
A	65-4	DM												
	65-1	MD												
	F5-4	MD		Pier	A; '	90%	intact	5-79	, de	bas	-			
	F5-1	MD		Preo	Br	PiRO	1							
B	H5-10	ND												
	H5-3	ŃΔ						\bigcirc						
	65-6	ND					\mathcal{A}							
	65-3	100												

Laboratory name:	Keservoirs Environmental, Inc.
Laboratory marrie.	Littlionniental, inc.
Instrement	JEOL 100 CX N
Voltage (KV)	teo KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

	Jucture Count							
	R&R							
Client:	Environmental,inc.							
Sample Type (A=A/r, D=Dust):	Α							
Air votume (L) or dust area								
(cm2)	1069							
Date received by lab	11/16/2011							
Lab Job Number:	224386							
Lab Sample Number:	825093							

F-Factor Calculation (Indirect P	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	An
Analysis date	11/17/2011
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Client Sample ID Number 3W-4t1411-W

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions		Identification	Mineral Class				1 = yes, blank = no				
Gird	Grid Opening	Туре	Primary	Total	Length	Width	Identinication	Amphibole	င	NAM	Sketch/Comments	Sketch	Photo	EDS		
A	H5-1	M				-	,									
	654	AM						,								
	65-1	M		Piec	A: :	85%	interc	5%	de) 02S	·					
	F5-4	M		Pier	₽~	Pres	A									
B	65-60	20						\bigcap		,						
	65-3	M						$\langle \times \rangle$	·							
	F5-6	63						8								
	F53	M														

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# OO$ counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm²)}}{\text{Average GO area (mm²)}} \times \frac{\text{IL}}{\text{1000cc}}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



November 18, 2011

Laboratory Code:

RES

Subcontract Number: Laboratory Report:

NA

Project # / P.O. #

RES 224473-1 None Given

Project Description:

Rocky Mtn. Power 3rd West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224473-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224473-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 17, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 18, 2011

Client ID Number	Lab ID Ni	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W111611-E	EM	82565 3	0.0900	990	ND	0.0043	BAS	BAS
3W111611-S	EM	825654	0.1200	644	ND	0.0050	B AS	BAS
3W111611-N	EM	825655	0.0900	982	ND	0.0044	B AS	BAS
3W111611-W	EM	825656	0.0900	980	ND	0.0044	B AS	B AS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

Dep 2011.11.18

Due Date:_	11-18-11
Due Time:	9

ES01 Logen St. Denver, CO e02 t6 - Ptr. 303 984-1888 - Fax 303-477-4273 - Tdl Free :886 RESI-ENV Pager: 803-608-81718

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Page	1 of	

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Address: 47 W .90005	Addiess:					Ptio	ne:									Pho					
Sandi Ut. 84070						1	Fax: Fax:														
						Co	Cell/pager: SD 54/1-1035 Cell/pager: SD 328-52/9														
Project Number and/or P.O. s: Project Description/Location: Double And L. Double 22 in 1924 Su						^r "). (DV								
Projete Description/Location: Rocky Min Power 3th West Su	b Diation											VIC	· (5v								
ASBESTOS LABORATORY HOURS: Weekdaye; 7am - 7pm					<u></u> F	REQU	E8T	ED A	NAL	Y81	8				VA	LID	MATRI)	(COI	DE8	LAB	NOTES:
PLM / PCM (TEM) RUSH (Same Day) PRIORITY (Next Day)STA N DARD	1								1					Alr				k=8		
(Rush PCM = 2hr, TBM = 6hr.)		ļ													Duel		_		nt = P		
CHEMISTRY LABORATORY HOURS: Weekdays: Sam - 6pm Metat(e) / Dust RUSH 24 hr 3-6 Day		┨	١.	1									1		Soll				6 = W		
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Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

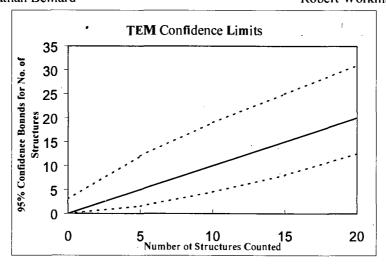
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RAR
A
970
11/17/11
224473
825653

F-Factor Calculation (Indirect Preps Only):							
Fraction of primary litter used							
Total Resuspension Volume (ml)							
Volume Applied to secondary filter (ml)							

Analyzed by	JB
Analysis date	ulada
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dime	nsions	Identification	Mineral Class			,	_ 1 = y	es, blank	= no
Gild	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-4	ND												
	144-4	ND												
	64-4	ND						· .		·				
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B	K3-1	ND												
<u>'</u>	H3-1	ND			<u> </u>									
	63-	ND												
	F3-1	M												

Page	_	of	

LAB NAME

REI LAB

Lab Job Number:

224473

Analyzed by:

Lab Sample Number 8251,54

Analysis Date:

| 1 = yes, blank = no

Grid	Grid	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = yes, blank = no		
Ond	Opening	Туре	Primary	Total	Length	Width	·	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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Laboratory name:	REI	Cije
Instrument	JEOL 100 CX N 15	Sa
Voltage (KV)	100 KV	Air (cn
Magnification	20KX 10KX	Dai
Grid opening area (mm2)	0.01	 Lat
l		$\overline{}$

0.28 um

0.056 um

385

Scale: 1L=

QA Type

Scale: 1D = Primary filter area

(mm2) Secondary Filter Area (mm2)

Reservotrs Environmental, Inc. TEM Asbestos Structure Count									
Client :	RAR								
Samole Tyoe (A=Air, D=Dust):	A								
Air volume (L) or dust area (cm2)	987								
Date received by lab	ulizhi								
Lab Job Number:	224473								
Lab Sample Number:	825655								

Analyzed by	JB
Analysis date	illiste
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Ciriculation (Indirect Pr					
Fraction of primary filter used					
Total Resuspanaion Volume (ml)					
Voluma Applied to secondary litter (ml)					

Grid	d Grid Opening Structure No. of Structures		ructures	Dimensions		Idehtification	Mineral Class				1 = yes, blank = no			
		Туре	Primary	Totai	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments		Photo	EDS
A	4-3	ND					,						7.00	
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	64-3	ND						1						
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	K5-4	ND						17 1						
	175-4	MO			,									
	654	ND								4 .				
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·	
Laboratory name:	REI
Instrument	JEOL 100 CX N/S
Voltage (KV)	100 KV
Magnification	ZOFO() IOKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale:. 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RAR
Sample Typo (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	980
Date received by lab	11 (17/11
Lab Job Number:	224473
Lab Sample Number:	825656

F-Factor Calculation (Indirect Preps	Only):	
Fraction of primary litter used	•	
Total Resuspension Votums (ml)		
Volume Applied to secondary filter (ml)		

Analyzed by	JB
Analysis date	11/18/01
Method (D=Direct, I=Indirect,	
IA=Ihdirect, ashed)	
Counting mies (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Stmcture	No. of St	ructures	Dime	nsions	Idehtification	Mineral Class		·	` `	1 = y	es, biank	= no
L		Cita Opolinia	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments		Photo	EDS
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		E3-3	M												
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Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be tenninated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (nim²)

GO = TEM grid opening



November 22, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224653-1 **N**one **G**iven

Project Description:

Rocky Mtn. Power 3rd West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224653-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224653-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 21, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 22, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number			Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading	
		•	(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W111711-E	EM	827161	0.0800	1094	ND	0.0044	BAS	BAS
3W111711-S	EM	827162	0.0800	1092	ND	0.0044	BAS	BAS
3W111711-N	EM	82 71 6 3	0.0800	1090	ND	0.0044	BAS	BAS
3W111711-W	EM	827164	0.0800	1088	ND	0.0044	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

Signally signed by Gina Vettraino Date 2011.11.22 10.26.21 - 0700*

DATA QA

Due Date: 11-22-11 Due Time:___

REILAS RESERVOIRS ENVIRONMENTAI, INC. 5801 Logan St. Denver, CO 80216 • Ph: 303 984-1986 • Fax 303-477-4275 • Toll Free :866 RESI-ENV

	Pager : 3 INVOICE TO	303-6116-206 D: (IF DIF		NT)								CON	VTAC1	I INF	ORN	ATION	l:				
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Sendy, Ut. 84070					F									- (Pax:						
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Project Description/Location: Rocky Mith Power 3th West	Sub Station										De Com										
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite		F = Fiber
An	=	Anthophyllite		B = Bundle
C	=	Chrysotile		C = Cluster
Cr	=	Crocidolite	•	M = Matrix
т	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

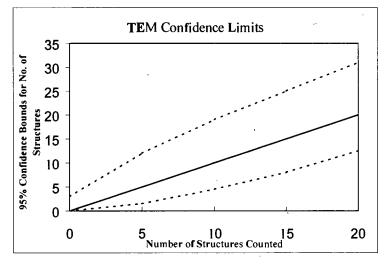
1 length unit = 5 mm on screen = 0.278 micron 1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

	
i.aboratory name:	REI
instrument	JEOL 100 CX/N)S
Voltaae (KV)	100 KV
Magnification	20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scate: 10 =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	
Sample Type (A=Air, D=Duet):	
Air volume (L) or dust area (cm2)	1004
Date received by lab	部的
Lab Job Number:	建则 成化
Lab Sample Number:	*2761

F-Factor Calculation (Indirect P	7/-
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	11/22/1
Method (D=Direct, I=Indirect, IA=Iodirect, asheti)	P
Counting mies (ISO, AHERA ASTM)	44
Grid storage location	Month Analyzed
Scope Alignment	Date Anelyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Gia	Grid Opening	Туре	Primary	Total	Length	Width	(dentinoation	Amphibole	C	NAM	Sketch/Comments	Sketch	Photo	EOS
A	F4-1	NO				.i								
<i>;</i>	E41	ND								`				
	141	ND			C) vy) 5	A47	750	bita	cf	7-10/	lebr	5	
	184-1	ND				,								
B	F5-	ND						4	15	1/22	γ			
	E5-1	ND								/				
	C5-	ND				,								
	B5-1	M											,	
									. :				·	

Laboratory name:	THE TREE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO THE PERSON NAMED IN
Instrument	JEOL 100 CX W.S
Voltage (KV)	THE REPORT OF THE PARTY OF THE
Magnification	20KX 10KX 4A
Grid opening area (mm2)	10.012 H
Scale: 1L =	2 n x 0 28 um
Scale: 1D =	10.056 um
Primary filter area (mm2)	1800年1800年1800年1800年1800年1800年1800年1800
Secondary Filter Area (mm2)	
QA Type	

郑郑和 题
THE PARTY OF THE P
排放情數學
TOTAL SEA
33403

F-Factor Calculation (Indirect Pr	reps Only):
Ftaction of primaly filter used	
Total Reauspansion Voluma (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	1965
Analysis date	建加速
Method (D≈Direct, I≈Indirect, IA≈Indirect, ashed)	MACHI
Counting tules (ISO, AHERA, ASTM)	A A P
Grid storage location	Monthi Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identificatioa	Mineral Class				1 = y	es, blank	=.no
Ond	Grid Opening	Туро	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-1	NO							·	· -		-		
- 1 × ₄	64-1	ÚD.												
	F4-1	ND			P	05.	4413	~80%	by	6.	7% deby	S		
	E4-1	1/0								·				
В	46-3	ND			·			Bu	/22/w					
	66-3	ND						1777	, , .					
	F6-3	ND						/						• .
	Eb-3	M							:: .				•	
							, .							
					. ,					,				

Laboratory name:	THE REPORT
Instrument	SEOL 100 CX NTS
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01317
Scale: 1L=	0.28 um
Scale: 1D=	10.058 um 20.058
Pnmary filter area (mm2)	2002 10 10 10 10 10 10 10 10 10 10 10 10 10
Secondary Filter Area (mm2)	海胆酸酶医
QA Type	

Ctient :	学》及目标
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	THE THE PARTY
Date received by lab	有多用数
Lab Job Number:	
Lab Sample Number:	第二章

Analyzed by	19108
Analysis date	经到2 对产
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	PHO THE
Counting rules (ISO, AHERA, ASTM)	214
Grid storage location	Month Ahalyzed
Scope Alignment	Date Analyzed

Fraction of primely lilter used		
Total Resuspension Volums (ml)		

Grid	Grid Opening	Structure	No. of St	fuctures	Dime	nsions	identification	Mineral Class				1 = y	es, blank	=.no
		Туре	Primary	Total	Length	Width		Amphibole	C ·	NAM	Sketch/Comments	Sketch	Photo	EDS
LA	144-1	ND												
	64-1	ND			2	ار م	60	Lubert	.7-	10%	Jehns			
	H 4mg	WD			2	p 12	60	he was hat	7-1	Ovlo	debuis_			· ·
	1,4-3	ND						/						
13	H4-1	ND						AB.	12/11				•	·
	614-1	w						1						
160 Jest	C182-6	W												
	F2-6	W							, ,					,
														-
	·				J ,									

Laboratory name:	THE REPORT OF
instrument	STEOL TOO CX TN TS
Voltage (ICV)	100 KV
Magnification	2.20KX 10KX
Grid opening area (mm2)	F 10.01
Scale: IL=	0.28 um
Scale: 1D =	20.0SS um
Primary filter area (mn\2)	中心。 中心 中心 中心 中心 中心 中心 中心 中心 中心 中心
Secondary Filter Area (mm2)	
QA Tvoe	

Client:	郑兴建疆
Samole Type (A=Air, D=Dust):	
Air volume (L) or dust area (cnt2)	
Date received by lab	新雄雄雄
Lab Job Number	274 54
Lab Sample Number:	THE PARTY

Analyzed by	103
Analyals date	被制造机
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	Mild the
Counting miles (ISO, AHERA, ASTM)	2 4 4 4
Grid storage location	Month Ahaiyzed
Scope Alignment	Dats Analyzed

F-Factor Calculation (Indire	ct Preps Only):
Flaction of primary littar used	
Total Resumperision Volume (m	n l
Volume Applied to secondary fi	tsr

				 ÷	 		,							
Grid	Grid Opening	Structure	No. of St	hictures	Dimer	nsions	identification	dentification Mineral Class		<u> </u>		. 1 ≥ y	es, blank	= .⊓0
		Туре	Primary	Total	Length	Width		Amphibole_	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A.	H3-4	ΛM			Py	o /	6	O'hour fran	<i>(</i>	2%	Libris			
,	63-4	ND			Pu	Δ.	B 80	his but		7-6	Sebris			·
	F3-4	ND												·
	E3-4	S						130	22/11					
B	K3-3	ND						171	1.					
	H33	WD											· '	
,	63-3	ND					_						:	
	F3-3	W											'	<u>.</u>
				·										
-														

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2)}$

GO = TEM grid opening

CONTACT INFORMATION:

Due	Date:	(-271
Due	Time:	9100

REI LAB RESERVITES ENVIRONMENTAL, INC., 5801 Logen St. Denver, CO 80216 • Ph. 303 964-1985 • Fax 303-477-4275 • Toll Free :866 RESI-ERV Pager : 803-809-2088

INVOICE TO: (IF DIFFERENT)

4 a		
Page	10	

company: 12 & a Eurison mental	Company:			Corri	Corriant Dave Roskelle y							Contact Justin Kongi's								
Address: 47 W 90005	Address:			Pter	e:							Phone:								
Sandy, Ut. 84070					Fa)e								Fax:							
	<u> </u>				801/	pager, c	30 1	54	1-l	035					dipes	18 Par	828-5	219		
Project Number anwier P.O. #:					Fina	Oete O														
Project Description/Location: Rolly Mith Romer 3th West Sc	ib Station					Ca	ve 1	ر ک	re	KUY	D.60	<u>~</u>								
ASBESTOS LABORATORY HOURS: Weekdays: 7am - Tpm		I			REQU	STE	DAN	IALY	818			$\neg \top$	V	ALI	D M/	TRIX	ODE8	LA	B NOTES	8:
PLM / PCM (TEM)RUSH (Same Day)PRIORITY (Next Da	y)STANDARD												A	r = #	\		Bulk = B	1.		
(Rush PCM.= 2hr, TEM ≈ Shr.)			1	1		.	11		1	1	11		Dı	ot =	D		Paint = P		·	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 8pm	·	4) e (Wlpe • W			
Metal(a) / Dant RUSH 24 hr 3-8 Oay	**Prior na@Bostion is					, [اء		1 1		ļ		ib = (F = Food			
RCRA 6 / Metals & Welding RUSH 6 day10 day	required for RUSH	复			1 6						£	Di	inking	Wah			te VMer≃ WM	 		
Organics24 hr3 day9 Dsy	ferm srounds,**	[월]	ŧ 🖁	1	1 B	i		榎		11	2 2	 .	MAGTA	4 E 4 7		= Other	pe medie only**	 		
MICROBIOLOGY LABORATORY HOURS: Weekdays: Bam - 6	<u></u>	- Z	2 tg	Ì	Metals Scan	1		9		5 5	- E X	<u> </u>	- AG 11	1617	oz api	MOAGG MI	pa media only		 -	
E.coil O187:H7, Colifornis, S.aureus24 hr2 Day			、啊!	٤		11		5			+- or Quentification +-, Identification, Quentificati SIMTIALS OR OTHER NOTES	-	į							
Salmonella, Listeria, E.coil, APC, Y & M 48 Hr. 3-5 D		8			12	1 1	11	#	4		種格の	- 1	1	1				-		
	46 Hr3 Day6 Day		O-vac, t	g E	S \$		*	ij		5 8		1	i							
"Twnsпиmd tines establish a latiorotory priority, subject to leboratory volume and	are not guurautoed. Additional foes		TEM - AHERA, Level Semi-quant, Micro-vac,	- fault, faute, Ca	- Analyte(s)TCLP, Wetding Fume,	ORGANICS - METH	E.cuti 0157.417:	Listeria: +/-	5	+ 4	P B 물	و ا	2							
apply for attentions, weekomiz and holidays.**] E	quant, Mic	≰ਂ ਛ	돌취	3	<u> </u>	茅	#		취족	1	į	<u>s</u>	2					
Special Instructions:		Short	\$ E	§ 5	8 7	SANICS - M		L'Esteria.	8	S.aureus:	2 5 5	<u> </u>	5 8 1	Š	Ë	D-4-	=:	EM Nu	mber (Let	borstory
			. E .		METALS -	8 8		T E	0 2	3 3	Motor MPLER	q	(L) / Are	Matrix Code	E Container	Date Collecte	Time d Collected	1 (Use Only)	7
Client sample ID number (Sample ID's must be unique	16)	3	F &	Sign	₩ S	ð		MICRO	OBIO	.00Y	3	8	3	2	#	mm/dd/y	/ his/mm e/p			
1 3W11811- E			X									19	148	A		11/18	u l	82	276	35
2 3WIII811 - S 3 3WAI811 - N									IT			9	48			Ī			1	27
9 34-114 1911 - Al		1	1		-	-	+-	_	1	++	++-		42	+				 	 	23 24
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		-	V		 		+-	-	╁┼			- 74	42	V	-			 		4
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7				1-			7 1		TI											
8		71			-			7		77					1			1		
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		┵┸				<u> </u>		Щ,	Ш											
Number of samples received: NOTB: RO selt energie incomine samples beald upon thiomselon received and will not it.	Manai samples shall be listed o	n Illiaci	sect ion	g font	l.)		ماطيع ا	a) alak-	Bac -4	l <i>a</i>	lamtia	··			pt	والمرابيطيم				
analysis as indicated on this Ciwin of Custody shall constibute an easilytical sangless agree	ement with payment terms of NET 30 of	aye, fallur	e to coult	ny with	DE INSC	Tanah or	nà taon Louisiu	it in a 1	.5% m .5% π	prixig c I erita ly	iniateet etki	cheige. ch	CITEMA	ı agra	ee (net		u et iue tonoming	aempies ser re	(quinated	
	- Collin					11/21	_	_					T		_			-		
Relinquished By: Laboratory Use Only	TOEK			Dete/1	ime;	1121	101	<u>~</u>	>-						Cond	lition:	On ics	Seeled	Intact	-
Received By:	Date/Time: (+2)	2.1	2 ب	ر سرن الإ	~Carrie	r: :	£	سأدر		4			Ter	np. (l	۳٦ _		Yes / No	Yes / No	des/h	No
	11/23/11 Time 7:20a in						Phone					D	ete	Π^{\dagger}	72	111	Time 17 (O Initi	lais Ell	
Contact Phone Email Fax Date		itiais	Con				Phone	_	_				ale	" +		+	Time	Initia		
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
т	_	Tramolita		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

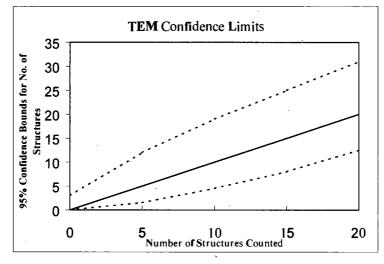
1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron 18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI BERTE
Instrument	JEOL 100 CX N S
Voltaae (KV)	100 KV
Magnification	(20KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.066 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	244
Sample Tyoe (A=Air, D=Dust):	4
Air volume (L) or dust area (cm2)	948
Date received by lab	11/2/24
Lab Job Number	22H7/5
Lab Sample Number	RZ #62. 2

F-Factor Calculation (Indirect Pr	eps	O	nly):	
Fraction of primary filter used	1		3	
Total Resuspension Volume (ml)	T			
Volume Applied to secondary filter (ml)	T			

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	AAH AA
Method (D=Oirect, l=Indirect, IA=Indirect, ashed)	
Analysis date	11/22/11
Analyzed by	UC

Grid	Grid Opening	Structure	No. of St	mctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Grid	Grid Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-1	M				1.5								. ,
	24-1	W					Drer A	180/ into	C4	3-5	Zdeloris V. Jelons			· .
	(4-1	M					Piner B	~50/-ins	act	3-5	1, Lebrs			
	C4-6	M						Sen /	ner	u/.	2/4			
	84-6	M												
3	25-1	W										<u> </u>		
	M-6.	W								<u> </u>				
	(4-4	M												
	K5-3	NO												

Laboratory name:	REL
instrument	JEOL 100 CX N S
Voltaae (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 11. =	0.28 um
Scale: 1D =	0:056 um
Primary filter area (mm2)	111111111111111111111111111111111111111
Secondary Fitter Area (mm2)	
QA Type	

Client:	
Sample Type (A=Air, D=Dust):	
Air yolume (L) or dust area (cn.2)	HALST
Date received by lab	16/60年7年
Lab Job Number:	
Lab Sample Number:	

Fraction of primary tiltsr used Total Resuspension Volume (mi) Volume Applied to secondary fitter

Lab Job Number:		製机		S	
Lab Sample Number:	*	7	UZ.		٠.
F-Factor Calculation (Indirect P	reps (Only):			
Fraction of primary tilter used	}	•			
Total Resuspension Volume (mi)					•
					

	CHEST OF CONTRACTOR CONTRACTOR
Analyzed by	_ SUICE
Analysis date	1752/
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	STORE .
Counting rules (ISO, AHERA, ASTM)	MAH 45
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class	• • •			1 = y	es, blank	= no
- Ond	ond Opening	Туре	Primary	Total	Length		identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-4	M											``````\	
	F3-6	M				1	or A	~70% W	a ch	~57	debns		•	
	F2-6	20				γ.	her B	~A der	h	en	11/22/11			
	c2-	2				:							.:.	
B	F3-4	[20]				-		-						
	23-4	M												
	(3-4	M				2 · · · · ·								
	F4-3	ND					1 12							
	24-3	ND												
					T									

	The second secon
Laboratory name:	REI 180
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20KX)10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 im
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	
Sample Type (A#Air, D=Dust):	
Air volume (L) or dust area (cm2)	
Date received by lab	117亿星人(1)
Lab Job Number:	
Lab Sample Number:	李元成四

Fraction of primary filter used Total Resuspension Volume (mi) Volume Applied to secondary filter (mt)

Lab Job Number:		G
Lab Sample Number:	\$ 2 A C Z	s
F-Factor Calculation (Indirect	Preps Only):	
Fraction of primary filter used		
- the section of plantary inter-		•

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	A
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
Analysis date	學的分支人
Analyzed by	TO WE

,							<u> </u>					, , , , , , , , , , , , , , , , , , , 			
	Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	identification	Mineral Class		· ··		1 = y	es, blank	= no
	· · · · · · · · · · · · · · · · · · ·		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
	A	(131	M				7 %.								
		F3-1	20					Pres	1 80/ 1WO	4 3	-57,	lebis			·
		63-1	25					Prev	B 60/, m						
		K4-4	140				-		den Um	1	12/	(1			
		44-4	M				:			'			<u> </u>		
,	B	75.6	m												
		45-le	M												
		C5-1	M												
		B5-1	M												

Laboratory name:	REI
Instrument	JEOL 100 CX N IS
Voltage (KV)	100 KV
Magnification	(20KX 310KX 11
Grid opening area (mm2)	
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	1385
Secondary Filter Area (mm2)	
QA Tyoe	

Client:	
Samole Type (A=Air, i)=Dust):	
Air volume (L) or dust area (cm2)	1917
Date received by lab	·
Lab Job Number:	
Lab Sample Number:	

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	TA A STATE OF
Method (D=Direct, l=Indirect, IA=indirect_ashed)	W. D. F.
Analysis date	11/22/11
Analyzed by	

F-Factor Calculation (Indirect Preps Only):

action of primary filter used	1	1.	
	┦—	·	<u> </u>
Total Resuspension Volume (ml)	Ì		
Volume Applied to secondary filter	+	<u> </u>	
(ml)			

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
		Туре	Primary	Total	Length	· -	identification	Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	44-4	M												
	K4-6	M				Pror	A ~80	Lintact	5-4	(. de	brs			
	94-6	29				Pre	BNA	Jon 11	kn	11/2	2/11			
	FUL	NO				·								
	F4-4	M				:		-						
·B	F3-3	NV)												
	23.3	N												
	13-3	W												
·	B3-3	M												

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening